

UCI-CIRM Research Training Program II

Grant Award Details

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Grant Type: Research Training II

Grant Number: TG2-01152

Project Objective: To provide stem cell training and research support for graduate students, postdoctoral and clinical fellows.

Investigator:

Name: Peter Donovan

Institution: University of California, Irvine

Type: PI

Award Value: \$6,067,550

Status: Closed

Progress Reports

Reporting Period: Year 4

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Reporting Period: Year 5

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Reporting Period: Year 6

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Reporting Period: NCE (Year 7)

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Grant Application Details

Application Title: Research Training Program II

Public Abstract: Here we propose a comprehensive doctoral, postdoctoral and clinical researcher training program designed to develop the next generation of researchers in the field of regenerative medicine. This field, which is centered around the comprehensive understanding, use and manipulation of stem and progenitor cells, promises to revolutionize the way that human diseases and disorders are treated. Advancing the goals of CIRM to develop new treatments for human disease based on stem and progenitor cells will likely require the understanding and application of multiple technologies. Researchers in this field will need to understand multiple disciplines and participate in multi-disciplinary research teams where each of the participants understands the capabilities and shortcomings of each other's technologies. Trainees will be recruited from within existing labs and by external recruitment. Our stem cell training program will emphasize broad, cross-disciplinary training, exposing trainees to concepts and techniques in diverse fields such as stem cell biology, biomedical engineering, pre-clinical development and clinical practice. Courses have been tailored to address the needs of the researchers of the future. All incoming trainees will take part in an intense, two week-long stem cell boot camp in which they will learn the ethical conduct of hypothesis driven research, advanced techniques in cell, DNA, RNA and protein analysis and participate in team building exercises in hypothesis driven research. In the second week of the course they will take the stem cell techniques course in which they will learn practical methods of stem cell isolation, culture and analysis. Journal clubs will allow fellows to keep abreast of the latest developments in the field. In addition we will host monthly seminars where experts present the latest developments in multiple fields related to stem cell research and regenerative medicine including developmental biology, bioengineering, molecular biology, etc. In this way fellows can be updated on the latest developments in the field broadly defined. Lectures will be recorded for web access so that topics can be revisited at leisure and accessed by the entire stem cell research community. Quarterly half-day workshops will expose trainees first-hand to patients and disease advocates, in order to discuss the real-world challenges facing treatment. An annual meeting will allow the administration to determine progress of all trainees as well as allowing trainees to share their results with experts in the field and to develop networking skills. The overall goal will be to train researchers capable of carrying out multidisciplinary research and developing new treatments for new human disease.

Statement of Benefit to California:

A primary goal of Proposition 71 is to translate basic stem cell research to clinical applications. The disability and loss of earning power and personal freedom resulting from a disease or disorder are devastating and create a financial burden for California in addition to the suffering caused to patients and their families. Therapies using human embryonic stem cells (hES cells) have the potential to change millions of lives. Using hES cells as models of disease will help us understand the underlying causes of disease and likely aid in the development of drugs to treat those diseases. For the potential of hES cells to be realized, California researchers need the personnel to develop hES cells into viable treatments. Therefore, the *raison d'être* for the proposed program is to provide training to the next generation of stem cell researchers capable of advancing the development of new methods of treating human disease. The breadth and depth of the stem cell biology and regenerative medicine research program, which has already made important advances and secured significant funding from CIRM, will act as the core around which all training will be organized. Anticipated benefits of our Training Program to the Citizens of California include: 1. Creation of an Program that will attract the best and brightest minds to the state 2. Development of new cell-based treatments for a variety of diseases and disorders 3. Generation of new techniques for using stem cells (and derived cells) to deliver drugs or other agents to tissues, thereby developing new treatment methods 4. Improved methods for understanding normal development and environmental risks to the early embryo 5. Improved methods for detecting and understanding effects of toxicants in the environment and workplace 6. Improved clinical trial methodology that will directly impact human testing of stem cell therapies 7. Development of new improved methods for developing and testing drugs for treating disease 8. Transfer of new technologies and intellectual property to the public realm with resulting IP revenues coming into the state 9. Creation of new biotechnology spin-off companies based on generated intellectual property 10. Creating interdisciplinary research teams that will have a competitive edge for obtaining funding from out of state 11. Development of researchers and clinicians that will establish clinical research programs in the state. 12. Creation of new jobs in the biotechnology sector. It is anticipated that, in the long term, the return to the State in terms of revenue, health benefits for its Citizens and job creation will be significant.

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